

## Passive Alcohol Sensors:

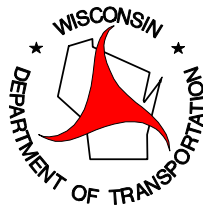
A Study Focusing on their Use, Performance,  
Effectiveness, and Policy Implications for  
Traffic Enforcement

Prepared For:

Governor Scott McCallum

By:

WISCONSIN DEPARTMENT OF TRANSPORTATION



December, 2002

# **Passive Alcohol Sensors: A Study Focusing on their Use, Performance, Effectiveness, and Policy Implications for Traffic Enforcement**

## **External Advisory Focus Groups**

### **Law Enforcement Focus Group**

**Officer Stewart Ballweg**, UW-Madison P.D.

**Capt. Ken Berg**, Eau Claire Co. S.O.

**Warden Karl Brooks**, DNR, Madison

**Sgt. Gordon Disch**, Dane Co. S.O.

**Officer Scott Neimi**, Elkhart Lake P.D.

**Sgt. Pattie Pautz**, State Patrol District 4, Wausau

**Sgt. Larry Peronne**, Manitowoc P.D.

**Chief Doug Pettit**, Oregon P.D.

**Terry Witkowski**, Blue Sky Consulting, Milwaukee

**Asst. Chief Noble Wray**, Madison P.D.

### **Legal Focus Group**

**Jacqueline Agee**, John Marshall Law School Student / PAS researcher

**Maureen Boyle**, District Attorney, Walworth County

**Barry Cohen**, Defense Attorney, Elkhart Lake

**Carol Doeppers**, Privacy Consultant (formerly of the WI ACLU), Madison

**Nina Emerson**, Director, Resource Center for Impaired Driving – UW Madison

**Hon. James Gramling**, Municipal Judge, City of Milwaukee

**Dave Perlman**, Assistant Attorney General, Wisconsin Department of Justice, Madison

**Mike Vaughan**, Attorney, Murphy/Desmond, Madison

**Dee Dee Watson**, Public Defender, State Public Defender's Office, Madison

## **WisDOT Project Committee**

**Loralee Brumund**, Legislative Analyst (Project Manager/Writer), Division of State Patrol, Planning, Budget and Technology Section

**Tim McClain**, Safety Policy Analyst (Editor and Lead Researcher/Writer), Bureau of Transportation Safety

**Jane Maney**, Chemist (Researcher/Writer, Laboratory Evaluation), Division of State Patrol, Chemical Test Section

**Hector Gonzalez-Velez**, Office of General Counsel

**Susan Hackworthy**, Division of State Patrol, Chemical Test Section, Chief

**Dennis Hughes**, Chief of Policy Analysis, Bureau of Transportation Safety

**Joseph Maassen**, Deputy Legal Counsel, Office of General Counsel

**Eugene Tremelling**, Division of State Patrol, Chemical Test Section, Supervisor

*Also, special thanks to **John Nordbo**, WisDOT Office of Organizational Development Services (OODS), (Moderator for Focus Groups), **Denise Olson**, Analyst, who assisted in the research for Chapters 1 and 2, **Paul Nilsen**, Office of General Counsel providing legal review, **Jim Condelles**, Office of Public Affairs, **Janet Hauke**, Program Assistant, OODS.*

Dec. 20, 2002

Governor Scott McCallum  
22 East State Capitol  
Madison, WI 53707

Dear Governor McCallum,

On behalf of the Wisconsin Department of Transportation, it is with great pleasure that I submit the results of our study, including findings and recommendations, on the effectiveness of passive alcohol sensors for use in traffic law enforcement. The Division of State Patrol, the Division of Transportation Investment Management, and the Office of General Counsel worked together with representatives of the law enforcement and legal communities and the general public to provide a comprehensive view of passive alcohol sensors.

Our study involved extensive dialogue with legal and law enforcement focus groups, an exhaustive review of existing literature on passive alcohol sensors, laboratory and user tests of passive alcohol sensors, a survey of public perception on passive alcohol sensors, and a compilation of judicial and privacy advocacy group opinions on the use of passive alcohol sensors. Within the final report are included the study findings regarding legal aspects of passive alcohol sensors, implementation factors for law enforcement, effectiveness of the devices, citizen concerns, and legislative considerations for Wisconsin.

Thank you for recognizing the need for such a study and providing the Wisconsin Department of Transportation the opportunity to accomplish this task. Each study participant gave their time, commitment and expertise to the process, providing diverse perspectives and genuine concern, to create these effective and attainable results.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Carlsen". The signature is fluid and cursive, with the first name "Tom" and last name "Carlsen" clearly distinguishable.

Tom Carlsen  
Secretary

## **Table of Contents**

<b><i>Executive Summary</i></b>	<b>6</b>
Governor’s Mandate	6
Purpose of this Report and Intended Audience	6
Report Objectives	7
Study Methodology	7
Findings	10
<b><i>Chapter One: Study Background and Description of Passive Alcohol Sensors</i></b>	<b>13</b>
Description of Passive Alcohol Sensors	13
Current Use of Passive Alcohol Sensors Nationwide	17
Current Use of Passive Alcohol Sensors in Wisconsin	18
<b><i>Chapter Two: The Current Legal Standing of Passive Alcohol Sensors, Legal and Law Enforcement Issues and Privacy Concerns</i></b>	<b>21</b>
What is the current legal standing of passive alcohol sensors in the United States and in Wisconsin?	21
Why have passive alcohol sensors raised concerns with respect to privacy?	22
What is the Fourth Amendment to the United States Constitution and how does this relate to passive alcohol sensors?	23
The Plain View Doctrine and Sense Enhancement Doctrine: Exceptions to the Fourth Amendment	29
State Law, Law Enforcement Policy and Public Perceptions	34
<b><i>Chapter Three: How well do Passive Alcohol Sensors Perform? Are they “Accurate?”</i></b>	<b>44</b>
WisDOT, Division of State Patrol, Chemical Test Section Evaluation	44
Additional National Studies Focusing on the Performance of Passive Alcohol Sensors	54
<b><i>Chapter Four: How Effective are Passive Alcohol Sensors in the Law Enforcement Environment?</i></b>	<b>57</b>
Effectiveness of Passive Alcohol Sensors	57
National Studies Focusing on the Effectiveness of Passive Alcohol Sensors	61
<b><i>Chapter Five: Study Summary and Findings</i></b>	<b>68</b>

## **Table of Contents (Continued)**

<b><i>Appendices</i></b> _____	<b>73</b>
<b>Appendix A: Results/Documentation from the Chemical Test Section Performance Evaluation of Passive Alcohol Sensors</b> _____	<b>74</b>
<b>Appendix C: Results from the Law Enforcement Focus Group Session and the Legal Focus Group Session in September, 2002</b> _____	<b>103</b>
<b>Appendix D: Legal Focus Group, September 11, 2002</b> _____	<b>114</b>
<b>Appendix E: Kernats, Michael. <i>Inspection, Search and Seizure of Motor Vehicles and Drivers</i>. Wisconsin Department of Transportation, Office of General Counsel (July, 2002).</b> _____	<b>125</b>
<b>Appendix F: Grey, Shenequa, L. <i>Passive Alcohol Sensors and the Fourth Amendment</i>. Published in Spring 2001 Issue of <i>the Impaired Driving Update</i>,. Civic Research Institute, Inc., Kingston, New Jersey.</b> _____	<b>141</b>

## **Executive Summary**

### **Governor's Mandate**

This study is being conducted at the request of Governor Scott McCallum. On August 30, 2001, Governor McCallum signed 2001 Wisconsin Act 16 (the budget bill) into law.

Previous to enactment, language included in Act 16 would have banned the use of passive alcohol sensors in Wisconsin. Governor McCallum vetoed this language (Section 2882m) and directed that the Wisconsin Department of Transportation study the effectiveness and use of passive alcohol sensors including consideration of the legal issues pertaining to their use. In his veto message, Governor McCallum raised two issues about passive alcohol sensors that he felt should be addressed: (1) concerns regarding the accuracy of the devices, and (2), ensuring the consideration of privacy rights”

**“ I am vetoing this section because the use of these sensors may assist law enforcement personnel from deterring persons from driving while intoxicated or under the influence of alcohol. However, I do have concerns pertaining to the accuracy of these instruments and to ensuring that privacy rights are considered. Therefore, I am requesting that the Department of Transportation work in cooperation with other agencies and law enforcement agencies to conduct a study on the effectiveness and use of these devices. Furthermore, the policy should be developed with greater input from law enforcement agencies and the public and be addressed in separate legislation.”**

**- Governor Scott McCallum comments from his veto message, 2001 Wisconsin Act 16, Section 2882m**

### **Purpose of this Report and Intended Audience**

This report summarizes the legal, enforcement and technical research conducted for this study as well as information gathered through the focus groups and survey research that was used to solicit opinions, perceptions and other ideas with respect to the use and effectiveness of passive alcohol sensors and the legal and policy implications associated with their use.

The focus of this study is on the use of passive alcohol sensors in **traffic enforcement**. However, non-traffic enforcement (e.g., to detect alcohol use in schools, the workplace and at large public gatherings such as music concerts) is also reviewed and discussed to a lesser degree.

The results of this report will be provided to the Governor, the legislature and any other interested parties and citizens. The purpose of this study is to meet the Governor's charge, which includes providing meaningful input from law enforcement

as well as the public, and to provide useful information for informing policymakers on these issues.

## **Report Objectives**

- To provide a general description of passive alcohol sensors including a technical description of how they operate;
- To provide a broad analysis regarding the use, performance and effectiveness of passive alcohol sensors based on literature and laboratory studies;
- To identify how passive alcohol sensors have been used as a traffic enforcement tool both nationally and internationally;
- To identify how passive alcohol sensors have been used in Wisconsin as a traffic enforcement tool;
- To identify what factors influence the use of passive alcohol sensors by Wisconsin law enforcement;
- To identify the current legal issues regarding the use of passive alcohol sensors focusing on the issues of privacy and legal use in Wisconsin.

## **Study Methodology**

The Wisconsin Department of Transportation, Bureau of Transportation Safety (BOTS), in collaboration with the Division of State Patrol (DSP), recommended that the study be conducted in 4 phases (see schedule below). This final report summarizes all the issues and information collected from the four phases.

### **Passive Alcohol Sensors: A Study Focusing on their Use, Performance, Effectiveness, and Policy Implications**

Phase I:	Technical Analysis/Literature review (Spring, 2002)
Phase II:	Legal Analysis/Literature Review (Fall, 2002)
Phase III:	The Wisconsin Experience: Analysis of Public and Focus Group Perceptions of Passive Alcohol Sensors (Fall, 2002)
Phase IV:	Final Report: Analysis and Presentation of Findings (December, 2002)

**WisDOT Project Committee Involvement:** WisDOT's Committee (please see inside cover for listing of staff members) met in December 2001 to scope out the Governor's charge and parameters for conducting the study. In February 2002, an outline and time schedule were developed covering the four project phases. Project staff reviewed the research results provided under Phase I (technical review) and Phase II (Legal Review) making suggestions where appropriate. During Phase III, project staff collected and summarized the results from the two focus groups that were convened in September 2002 and the Omnibus Survey conducted by the University of Wisconsin Survey Center collecting public perceptions on the use of passive alcohol sensors. Project staff convened in October 2002 to discuss the first draft of the report and the results from the laboratory analysis that was conducted during Phase I. In November, 2002, two presentations were made before: (1) WisDOT Division Administrators and (2), the WisDOT Office of Public Affairs, the WisDOT Office of Planning and Budget and Deputy Secretary, Pat Goss.

***The following identifies specific activities that were conducted under the four phases for this study:***

**Literature Review:**

During Phase I, a comprehensive literature search was conducted utilizing numerous electronic databases available on the World Wide Web and through the University of Wisconsin-Madison in addition to utilizing resources available including information from passive alcohol sensor manufacturers on the World Wide Web. Information was also collected during telephone and email discussions with several Wisconsin law enforcement officers familiar with passive alcohol sensor technology.

**Laboratory Analysis of Passive Alcohol Sensors:**

An evaluation of passive alcohol sensing devices was undertaken by the Division of State Patrol Chemical Test Section to determine the performance of the devices in both laboratory and human drinking subject settings (controlled dosing). Part of the laboratory analysis included open containers of various mixed alcohol beverages to test the responses from the devices. Six manufacturers representing those who market passive alcohol sensors in the United States including Wisconsin were identified and contacted to determine their willingness to participate in the study. All manufacturers agreed, loaning the Chemical Test Section a single device for the length of the study. A more detailed description of the research and subsequent findings can be found in Chapter 3 of this report and in Appendix A.

**Review of Case Law and the Wisconsin State Statutes:**

During Phase 2, a comprehensive search of the Wisconsin State Statutes and the Wisconsin Department of Transportation's Administrative Rule Trans 311 was conducted focusing on statutory authority and the current legal standing of passive alcohol sensors in Wisconsin. In addition, a comprehensive review of Wisconsin and national case law was conducted reviewing legal and law enforcement opinions



involving the Fourth Amendment to the U.S. Constitution with focus on search and seizure issues and exceptions to the Fourth Amendment. This included applicable cases from the Wisconsin Supreme Court, the U.S. Supreme Court as well as the lower courts.

**Focus Groups:**

During Phase 3, two focus groups, a “Law Enforcement Group” and a “Legal Focus Group” were created. These two focus groups conducted separate meetings, held on September 4, 2002 and September 11, 2002 respectively, to discuss passive alcohol sensor devices. The purpose of the focus groups was to obtain greater input from both law enforcement personnel, and legal professionals on the use of passive alcohol sensors for traffic enforcement in Wisconsin and focusing on issues related to ease of use, implementation, legal issues and privacy concerns.

*The Law Enforcement Focus Group* was composed of law enforcement personnel from throughout the state - representatives from sheriff’s departments, police departments, the DNR and the State Patrol (a list of the participants and the questions which were asked can be found in Appendix C of this report). Participants were asked a series of questions focusing on the following general issues:

- How passive alcohol sensors have been used by Wisconsin Law Enforcement agencies.
- Their performance/effectiveness as a tool for enforcement.
- Privacy issues such as whether these devices represent an infringement of personal privacy protections (unreasonable search and seizure) covered under the fourth amendment.
- Their impact in general on the enforcement of impaired driving laws.

Each participant was afforded the opportunity to give their own opinions on these issues. Discussion among all participants was also encouraged. The results of the discussion are summarized in Appendix C of this the report and are also quoted throughout this final report.

*The Legal Focus Group* was composed of defense and prosecuting attorneys, public defenders, a municipal judge, a privacy advocate/consultant, and a law student who has conducted research on legal issues pertaining to the use of passive alcohol sensors (a list of participants the questions which were asked can be found in Appendix C of this report). Participants were be asked a series of questions focusing on the following general issues:

- Privacy issues such as whether these devices represent an infringement of personal privacy protections (“unreasonable search and seizure”) covered under the Fourth amendment as applicable to traffic stops.
- The impact of passive alcohol sensors on OWI arrests and convictions.

Each participant was afforded the opportunity to give their own opinions on these issues. Discussion among all participants was also encouraged. The results of the discussion are summarized in Appendix C of the report and are also quoted throughout this final report.

### **“Omnibus Survey”:**

During Phase 3, survey information was compiled from the 2002 Department of Transportation Omnibus Study, conducted by the University of Wisconsin Survey Center (UWSC) for the Wisconsin Department of Transportation.

The Omnibus Survey interviewed 750 randomly selected men and women in households throughout the State of Wisconsin, contacted by telephone, to gather residents’ opinions on a wide range of state transportation issues. Three questions pertaining to passive alcohol sensors were included within the survey. Only licensed drivers were interviewed, so households that included no licensed drivers were screened out and the interview was terminated.

Interviewing for the 2002 Department of Transportation Omnibus Study began on July 23, 2002, and ended on September 4, 2002. The UWSC completed a total of 770 interviews at an average length of 18.07 minutes per interview (more detailed information about the Omnibus Survey and the three questions pertaining to passive alcohol sensors can be found on Page 42 of this final report).

## **Findings**

- Passive alcohol sensors are designed to only provide a qualitative not quantitative assessment of the presence of alcohol.
- Although passive alcohol sensors are technically similar, they are manufactured in different shapes and sizes.
- Passive alcohol sensors have been used on a limited basis in Wisconsin to assist in traffic law enforcement.
- Passive alcohol sensors can be used by law enforcement and others for non-traffic applications.
- Existing case law and legal opinion have not identified a conflict between the correct use of passive alcohol sensors by law enforcement for traffic enforcement and the 4<sup>th</sup> Amendment to the U.S. Constitution.
- The use of passive alcohol sensors raises concerns about privacy rights and compliance with laws regulating searches and seizures.

- Many participants of the law enforcement and legal focus groups indicated that passive alcohol sensors should not be banned for use in traffic law enforcement in Wisconsin. Some suggested that banning the devices would not serve a constructive purpose and the devices are another tool that should be made available for use in accordance with individual law enforcement agency and community needs.
- The public's perception of law enforcement use of passive alcohol sensors may provide a deterrent to impaired driving.
- The performance of passive alcohol sensors during testing was variable and even under laboratory conditions these devices did not approach the degree of dependability inherent in the qualitative devices that are already approved for use in Wisconsin. This lack of dependability was particularly evident during the testing of drinking subjects.
- Due to the nature of the passive alcohol sensors' sampling methods, the source of any detected alcohol cannot be known with complete certainty.
- The determination of "effectiveness" of passive alcohol sensors is measured by various standards, including:
  - a) accuracy of each device as indicated by scientific testing;
  - b) use of the devices as a public deterrence to impaired driving;
  - c) cost of the devices for law enforcement in relation to the cost of other impaired driving detection tools;
  - d) ease of implementation of the devices into law enforcement practices and policies.
- Passive alcohol sensors, like other technology, can be abused or used improperly by their operators resulting in information that could incorrectly characterize the drinking status of the driver/suspect.
- Research and data identified in Wisconsin studies do not indicate that the use of passive alcohol sensors influences the detection or conviction of alcohol-impaired drivers.
- Due to performance differences under varying environmental and weather conditions, there is a definite need for caution when considering the use of passive alcohol sensors for traffic law enforcement.